## REMARKS

Claims 1-21 are pending. Claim 1 is amended with this response. Applicant notes with appreciation the provisional allowance of claims 3-9 and 12-19. Reconsideration of the application is respectfully requested for at least the following reasons.

## I. REJECTION OF CLAIMS 1 AND 10 UNDER 35 U.S.C. § 102(a)

Independent claims 1 and 10 were rejected under 35 U.S.C. § 102(a) as being anticipated by figure 6 of admitted Prior Art. Withdrawal of the rejection is respectfully requested for at least the following reasons.

Claim 1 of the present invention relates to a tracking system comprising a first system operable to perform a pilot-based phase and frequency tracking, a second system operable to perform a data-based phase and frequency tracking, and a control system connected to said first system and to said second system that is operable to gradually switch from the pilot-based phase and frequency tracking to the data-based phase and frequency tracking.

The device shown in figure 6 of the admitted Prior Art fails to anticipate the control system of claim 1 of the present invention. (*See*, figure 7 or figure 8, element 106). More particularly, the prior art fails to provide information on ***how*** the control would be implemented. For example, neither figure 6 nor background information of the specification disclose the ***gradual switch*** between the pilot-based and the data-based tracking as taught in claim 1 of the present invention.

Further, paragraph [0024] of the present invention, which reads "it is desirable to be able to use robust pilot based tracking near the beginning of the transmission, but to switch over to less noisy, but slower data based tracking for the remainder of the transmission, using a combined architecture such as that shown in figure 6", fails to state that such a switching is performed ***in relation*** to the elements of figure 6. This sentence is a statement relating to a desired feature that would use an architecture like figure 6, but cannot represent that feature as present in figure 6 since there is ***no***

***(control) element in figure 6*** by which this desired feature can be performed. Since the prior art described by figure 6 does not provide a control system, this section of the background information should be read in conjunction with the prior art of figure 6 to lead the reader towards the important aspects that are to be disclosed in the present invention.

Moreover, a person skilled in the art is given no information about how to provide this feature, nor does the remaining admitted Prior Art provide any further information on the subject matter of claim 1. A person skilled in the art is therefore not prompted to integrate a control system into the technical teaching of the Prior Art in order to provide the claimed gradual switch.

Claim 10 is directed to a method for tracking rapid changes in frequency and phase offset. The method comprises performing pilot-based phase and frequency tracking, and data-based phase and frequency tracking. The method further comprises ***gradually reducing*** the effect of the pilot-based phase and frequency tracking to switch to the data-based phase and frequency tracking.

Regarding claim 10, based upon the same argument as claim 1, the primary reference does not anticipate the control system of claim 10. Therefore, claim 10 is also non-obvious over the cited art. Accordingly, withdrawal of the rejection is respectfully requested.

## II. REJECTION OF CLAIMS 2, 11, AND 19-21 UNDER 35 U.S.C. § 103(a)

Claims 2, 11, and 19-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2002/0101840 (Davidsson et al.). Withdrawal of the rejection is respectfully requested for at least the following reasons.

Claim 2 relates to a tracking system comprising a first system operable to perform a pilot-based phase and frequency tracking, a second system operable to perform data-based phase and frequency tracking, and a control system connected to the first system and to the second system that gradually reduce an effect of the first system and which comprises at least one weighting component operable to gradually

decrease weight factors associated therewith to gradually reduce the effect of the first system. Davidsson et al. fail to teach either the control system operable to reduce the effect of the pilot-based tracking system or the weighing component operable to gradually reduce the effect of the first system as claimed in claim 2 of the present invention.

Davidsson et al. teach a demodulation section 50(6) comprising a preamble directed frequency offset estimation unit 102, a channel estimation unit 112, a timing correction unit 100(6), and a decision directed frequency offset estimation unit 150(6). (*See*, *e.g.*, Figure 6). The Office Action states that the combination of elements 102, 112, and 100(6) provide phase and frequency tracking, wherein the preamble directed frequency offset estimation unit 102 can generate a frequency offset estimation utilizing a pilot aided frequency offset estimation (*See*, p. 4, line 5 – p. 5, line 2). The Office Action states that the decision directed frequency offset estimation unit 150(6) performs data-based phase and frequency tracking. (*See*, p. 5, line 13-15).

The Office Action also states that because the timing correction unit 100(4) estimates a timing drift value and compensates for the timing drift value in the frequency domain to provide a time corrected frequency domain modulated signal, that therefore, the timing correction unit 100(4) is operable to gradually reduce the effect of the pilot-based tracking system. (*See*. p. 5, line 16-20). ***However, it is respectfully submitted that Davidsson et al. fail to teach that the timing correction unit 100(4) gradually reduces the effect of the pilot-based tracking (102 and 112) as taught in claim 2 of the present invention.***

Davidsson et al. teach an example of a demodulation section 50(6), such as shown in figures 6 and 7, wherein the frequency correction unit 104 is not applied. (*See*, p.8, paragraph [0097], line 1-2 and p. 6, paragraph [0080]). In this example, the decision directed unit 150 provides frequency offset to the timing correction unit 100 instead of the preamble providing the frequency offset to the timing correction unit 100 as is done in the pilot-based tracking. (*See,* p. 6, paragraph [0080]). In this example Davidsson et al. teach a frequency offset provided from the decision directed unit, but

***fail to teach a control system which gradually reduces*** the effect of the pilot-based tracking unit.

In another example, wherein the frequency correction unit 104 is applied, the frequency offset estimated by 102 must be added to the estimation of 150. (*See*, p.8, paragraph [0097]). Davidsson et al. teach the incorporation of the pilot-based tracking and the data-based track, but as in the previous example, they fail to teach a control system which gradual reduces the effect of the pilot-based tracking as taught in claim 2 of the present invention.

In their disclosure, Davidsson et al. set out distinct examples utilizing a pilot-based tracking, a data-based tracking, or a data-based and pilot-based tracking. However, ***Davidsson et al. fail teach a control system*** which switches from the pilot-based track to the data-based tracking or ***which reduces the effect of the pilot-based tracking.***

Even if the control system were taught, Davidsson et al. are silent in regard to how the control could be implemented. Davidsson et al. teach the mechanics behind the pilot-based and data-based tracking but fail to teach how or why the frequency correction unit 100 would switch from the pilot-based tracking to the data-based tracking. For example, Davidsson et al. do not teach that there is a gradual reduction of the pilot-based tracking as taught in claim 2 of the present invention.

Further, Davidsson et al. teach the pilot-based tracking method completely separate from the data-based tracking method and therefore give no motivation for switching between the two methods in a single receiver.

Moreover, claim 2 of the present invention states that the control system comprises at least one weighting component operable to gradually reduce the effect of the first system. The Office Action states that the weighting components are taught in paragraph [0082]. In this and subsequent paragraphs, Davidsson et al. teach that the decision directed unit 150 has three inputs [0082]and that the input of the timing correction unit 100 is multiplied by the input of the mapping unit [0084]. ***However, they***

***do not teach a gradual reduction of the effect of the pilot-based tracking due to this multiplication of signals.***

Accordingly, for at least the above reasons withdrawal of the rejection of claim 2 is respectfully requested.

Claim 11 relates to a method for tracking rapid changes in frequency and phase offset in a receiver comprising ***gradually reducing*** an effect of said pilot-based phase and frequency tracking.

Claim 19 relates to at least one computer program product directly loadable into the internal memory of at least one digital compute comprising software code for ***gradually reducing*** an effect of the pilot-based phase and frequency tracking.

Claim 20 is directed to a tracking system that comprises a control system that is operable to ***gradually reduce*** an effect of the first system (performing pilot-based phase and frequency tracking) and increase an effect of the second system (performing data-based phase and frequency tracking).

Claim 21 is directed to a method of performing both pilot-based phase and frequency tracking and data-based phase and frequency tracking. The method further comprises ***gradually reducing*** an effect of said pilot-based phase and frequency tracking and increasing an effect of said data-based phase and frequency tracking system.

The requirement of the control system to increase an effect of the second system requires a functional relationship between the control system and the second system. In contrast, claim 2 of the present invention only requires the control system to be connected to the second system and therefore does not require any function relationship between the components. Therefore claim 2 and 20 and 21 cannot be of similar scope.

Moreover, as stated above, Davidsson et al. do not teach the control system taught in the present invention. Therefore the cited reference does not teach over the inventions of claims 20 or 21. Accordingly, withdrawal of the rejection is respectfully requested

## III. CONCLUSION

For at least the above reasons, the claims currently under consideration are believed to be in condition for allowance.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should any fees be due as a result of the filing of this response, the Commissioner is hereby authorized to charge the Deposit Account Number 50-1733, LLP127US.

Respectfully submitted,
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